

## RUBBER DISCS FOR CHILD'S GAME

### CROSS-REFERENCE TO RELATED PATENT APPLICATIONS

**[0001]** This patent application claims the benefit of U.S. provisional patent application 60/260,461, filed January 10, 2001.

### FIELD OF THE INVENTION

**[0002]** The present invention relates generally to games, and more particularly relates to physical fitness games such as those involving bounding or hopping.

### BACKGROUND OF THE INVENTION

**[0003]** There are many types of gaming elements for use in physical fitness games involving bounding or hopping. The present invention relates to those gaming elements which are intended to support a person above the ground. The present invention also relates to particular methods of playing with these gaming elements. One such gaming element that is very well known is a poly spot. Poly spots are typically flat and thin rubber plates that come in many shapes, but generally cover a large area for good visibility and to receive a person's foot. These spots typically can serve various functions such as identifying a particular location, e.g. a base on a baseball field. For example, U.S. Pat. No. 5,156,409 discloses a hopping game involving differently shaped mats having different indicia. Other such elements include cones or domes which are intended to be stood upon and walked between. For example, U.S. Pat. No. 3,558,133 discloses a game element having cup-shaped elements. These cup-shaped elements are intended to be stepped on, from one to another, much like stepping stones.

## BRIEF SUMMARY OF THE INVENTION

**[0004]** One embodiment of the invention provides a gaming element for playing a physical fitness game where players bound from one element to another. The gaming element is for use in a game set having multiple elements. The element generally comprises a disc constructed of an elastomer to absorb shock. The disc has a top surface, a bottom surface, and a side surface, the top and bottom surfaces positioned generally parallel to one another and the side surface positioned generally perpendicular to the top and bottom surfaces. The disc has a diameter to height ratio in the range of 9 to 19, and preferably in the range of 11 to 16.

**[0005]** Preferably, both the top surface and the bottom surface have a gripping layer connected thereto. Each gripping layer is discontinuous, and includes a plurality of projections extending outwardly from the disc. The projections are preferably cylindrical, and have a diameter between 3% and 5% of the diameter of the disc. Each gripping surface is integrally formed with the disc. The elastomer preferably has a durometer of between 35 and 55.

**[0006]** Another embodiment of the invention provides a gaming element for playing a physical fitness game where players bound from one element to another. The element is for use with a game set having multiple elements. The element generally comprises a disc constructed of an elastomer to absorb shock, the disc having a top surface, a bottom surface, and a side surface. The top and bottom surfaces are positioned generally parallel to one another, and the side surface positioned generally perpendicular to the top and bottom surfaces. The top and bottom surfaces each define a gripping surface having a plurality of projections projecting outwardly from the top and bottom surfaces.

**[0007]** Preferably, the projections have a diameter of about  $\frac{1}{4}$  inch and project outwardly about  $1/16"$ . The projections are preferably equidistantly spaced about the top and bottom surfaces. The gripping surfaces may further include indicia projecting outwardly from the top and bottom surfaces. Preferably, the indicia are larger than the projections. The indicia on the bottom surface, relative the indicia on the top surface, is flipped about a horizontal axis

extending through the disc, whereby the respective indicia of the top and bottom surfaces is identically viewed when either surface is facing upwards.

[0008] A method of playing a game having a set of gaming elements, described above, is also provided. The method generally comprises the steps of: positioning the set of gaming elements on the ground in a series; traversing the series of gaming elements by bounding from a current element to an adjacent element; and scoring a point for each move from the current element to an adjacent element when the following conditions are met: a) a participant may contact only one element at any given time; b) a participant may have only one foot in contact with the one element; and c) a participant may not touch the ground with any part of the body, including the foot in contact with the one element.

[0009] Other embodiments, objectives and advantages of the invention will become more apparent from the following detailed description when taken in conjunction with the accompanying drawings.

#### BRIEF DESCRIPTION OF THE DRAWINGS

[0010] The accompanying drawings incorporated in and forming a part of the specification illustrate several aspects of the present invention, and together with the description serve to explain the principles of the invention. In the drawings:

[0011] FIG. 1 is a perspective view, taken from the top, of an embodiment of the gaming element constructed in accordance with the teachings of the present invention;

[0012] FIG. 2 is a perspective view, taken from the bottom, of an embodiment of the gaming element constructed in accordance with the teachings of the present invention.

[0013] FIG. 3 is a plan view of the gaming element depicted in FIGS. 1 and 2;

[0014] FIG. 4 is a cross-sectional view of the gaming element depicted in FIGS. 1 and 2, taken about the line 4-4 in FIG. 3; and

[0015] FIG. 5 is a perspective view of the utilization of a plurality of gaming elements such as the element depicted in FIGS. 1 and 2.

[0016] While the invention will be described in connection with certain preferred embodiments, there is no intent to limit it to those embodiments. On the contrary, the intent

is to cover all alternatives, modifications and equivalents as included within the spirit and scope of the invention as defined by the appended claims.

## DETAILED DESCRIPTION OF THE INVENTION

**[0017]** Referring now to the illustrations, FIGS. 1 and 2 depict perspective views of a gaming element 20 constructed in accordance with the teaching of the present invention. Each gaming element 20 is designed for use as a fitness device and/or competitive games. The gaming elements, as well as the methods of use described below, are designed to provide a safe, fun way of achieving high levels of aerobic and muscular fitness, coordination, balance, agility, reflexes, flexibility, timing, and concentration. As used herein, bounding refers to actions such as hopping or leaping, where the leaping foot leaves the ground before the landing foot touches the ground, as contrasted from walking.

**[0018]** One drawback of prior walking or hopping elements is that some are not as challenging, or may otherwise make it difficult to truly tell whether the transition was successfully made within the confines of the element or without touching the ground. Yet other game elements clearly indicate whether a leap was successful, but can pose a safety risk for missed attempts. For example, the cup-shaped elements disclosed in U.S. Pat. No.

3,558,133 are relatively tall and hence clearly indicate successful leaps, but can also pose potential safety hazards. These elements are not suitable for bounding between.

Unsuccessful bounds between such cup-shaped elements could result in a twisted or sprained ankle, or worse. At the other end of the spectrum, poly spots present very little to no safety hazards, because they are relatively thin. This construction makes balancing on the element extremely easy, but it also makes it difficult for the participant, or a referee, to determine when a participant's foot is completely on the element or touching the ground.

**[0019]** Unlike such devices, the depicted embodiment of the present invention provides a gaming element 20 that is constructed to clearly indicate whether a successful bound, leap or hop has been made, while also minimizing the risk of injury. The gaming element 20 is sized to challenge the participant in landing on and maintaining balance on the element. Referring to FIGS. 1-4, each element 20 generally comprises a disc 30 having a generally circular

shape, defined by an annular side surface 32 linking an upper surface 31 and a lower surface 33. The top and bottom surfaces 31, 33 are positioned generally parallel to one another, while the side surface 32 is positioned generally perpendicular to the top and bottom surfaces 31, 33. In the depicted embodiment, the side surface meets the top and bottom surfaces at two annular edges, which are preferably radiused about 1/8". Preferably, the disc 30 has a thickness of between 3/8" to 5/8", and a diameter of between 6" to 7". Thus each disc 30 preferably has a diameter to height ratio in the range of 9 to 19, and more preferably in the range of 11 to 16.

**[0020]** This construction is thick enough for the participant to feel upon landing that he/she has successfully completed or missed the leap, yet is thin enough to negate the risk of injury due to failing to land squarely on the element 20. Further, each disc 30 is of a size that challenges the accuracy of the participant by accommodating only the front part of the shoe under the ball and toe of the foot. Each disc 30 is designed to simulate the feel and "risk" of landing on a small elevated "stepping stone-like" surface. However, the actual risk of injury due to landing only partially on a disc or missing altogether is negligible.

**[0021]** In its preferred construction, each disc 30 is formed of an elastomer, preferably a relatively soft, plastic, vinyl, rubber, or similar material. It is preferable to select a material having a durometer of between 35 and 55, and most preferably about 45. Accordingly, each disc 30 absorbs some of the shock of landing and reduces stress on the participants feet, ankles, legs and knees. Furthermore, constructing each disc 30 of an elastomer assists in keeping the discs 30 in place without slipping. An elastomer should be chosen which is non-slip on a flat surface such as a gym floor, short carpet, concrete, or blacktop. Further, the material should have good durability for use on concrete or blacktop, and should be tear resistant on these ground surfaces. The material is preferably able to be colored, but should be non-marking and should not react with carpet or other floor covering so as to discolor or harm the floor covering. Finally, the material should be fade and mildew resistant.

**[0022]** Each gaming element also includes another design feature that assists in keeping the discs in place without slipping, and assists in keeping a participant's foot on the disc without slipping. As shown in the figures, each of the top and bottom surfaces 31, 33 is textured to define a gripping surface. Stated another way, a gripping layer is connected to or defined by each of the top and bottom surfaces 31, 33. Each gripping layer generally

includes a plurality of projections 36 extending outwardly from the top and bottom surfaces 31, 33. Preferably, the projections 36 are circular or cylindrical, and each have a diameter of about  $\frac{1}{4}$ ", that is about 1/24 to 1/28 (about 3% to 5%) the diameter of the disc. Each projection 36 is raised about 1/16" from the surfaces 31, 33. The projections 36 are equidistantly spaced about the upper and lower surfaces.

[0023] Each gripping layer may further include one more indicia 40 extending outwardly from the top and bottom surfaces 31, 33. In the illustrated embodiment, the indicia 40 includes several letters aligned to spell HOP ROX® in a cross-shape, while the plurality of projections 36 fill in the gaps around and between the indicia 40. The indicia 40 is also preferably raised about 1/16" from the surfaces 31, 33. Additionally, the indicia 40 generally covers a larger surface area than the gripping projections 36, the interspersed combination of which defines a non-skid surface. The projections 36 and indicia 40 of each gripping layer are preferably integrally formed with the disc 30, and formed of the same elastomer. Accordingly, each gaming element 20 may be formed by a process such as injection molding.

[0024] It can be seen that the gripping layer covers only a portion of the top and bottom surfaces 31, 33 to provide a discontinuous gripping layer. As best seen in FIGS. 1 and 2, the top and bottom surfaces 31, 33 each have the same raised and textured non-slip design consisting of a stylized logo 40 and additional projections 36. It will be noted that no matter whether the top or bottom surface 31, 33 is facing upwards, the indicia 40 is identically viewed, and one gripping surface engages the ground while the other is ready to receive a participant. Hence, each gaming element 20 is reversible, and may be thrown or placed without regard to which side is facing up, since the indicia 40 on one side is flipped relative to the indicia 40 on the other side. That is, the indicia 40 on one side is flipped about a horizontal axis extending through the disc. The combination of proper selection of material (preferably an elastomer having a durometer of between 35 and 55) and a discontinuous gripping layer (preferably having a plurality of small projections 36) provides a gaming element 20 that is non-slip on a flat surface such as a gym floor, short carpet, concrete, or blacktop.

[0025] In summary, each gaming element 20 allows a participant to bound from one element to another, even when placed some distance apart, while maintaining the following characteristics: (1) stays in place without slipping; (2) is soft enough to absorb some of the

shock of landing; (3) is thick enough for the participant to feel upon landing that he has successfully completed or missed the bound; (4) is thin enough to negate the risk of injury due to failing to land squarely on the gaming element 20; and (5) is of appropriate size and shape to challenge the accuracy of the participant by accommodating only the front part of the shoe under the ball and toe of the foot. The gaming elements 20 may be used to achieve aerobic fitness, play games, practice balance, or used in a fitness routine. Regardless of a person's approach or motivation, using properly will significantly improve aerobic fitness and muscular development, coordination, agility, balance, reflexes, concentration, and timing.

[0026] A game for using these elements 20 has been developed and entitled HOP ROX®, which in the embodiment depicted is also used to identify the gaming elements 20 via the indicia 40. Referring to FIG. 5, each gaming element 20 is designed to be used with a plurality of similar elements 20 (any number, preferably 3-25) and placed in a series on surfaces (preferably flat) such as, but not limited to, gym floors, short carpet, blacktop and concrete. The arrangement of the gaming elements 20 in a series can be linear, circuitous, or any other conceivable arrangement that allows a player/participant 15 (ROXster) to hop, jump or leap from one of the HOP ROX® elements 20 to the next, landing on the ball and toe of one foot only and maintaining balance until hopping to the next HOP ROX® element in a similar fashion. It is preferable to use the gaming elements 20 on firm, dry, non-slip surfaces only, such as gym floors, tightly woven short carpet, blacktop, concrete, or similar. The area should be unobstructed and of adequate vertical and horizontal space to ensure safety.

[0027] The basic method and rules of playing HOP ROX® includes the steps of: positioning the set of elements on the ground in a series; traversing the series of elements by bounding from a current element to an adjacent element; and scoring a point for each move from the current element to an adjacent element when the following conditions are met: a) a participant 15 may contact only one element at any given time; b) a participant 15 may have only one foot in contact with the one element; and c) a participant 15 may not touch the ground with any part of the body, including the foot in contact with the one element. An additional condition for scoring points can include: d) a participant 15 may not touch any other objects for support except for gaming elements 20.

[0028] The method of using these gaming elements 20 described above, as well as the variations described below, may be very simple or extremely difficult depending on the

spacing, arrangement, and sequencing of the elements and the participant's age and/or ability. It will be recognized that during a warm-up or beginners level activity, walking from one gaming element 20 to the next is appropriate. Any game or activity described herein may be modified to meet the personal needs and enjoyment of the participant 15 by controlling the spacing, arrangement and sequencing of the elements 20.

[0029] The following is a list of various activities, exercises or other modifications to the basic method and rules described above:

[0030] 1 - Warm Up - Lay out a simple number, sequence and arrangement of gaming elements 20 and walk it several times. Then hop the same course for 7-10 minutes until warmed up.

[0031] 2 - Basic Linear - Lay out any number or sequence of gaming elements 20 in an overall linear arrangement and hop from one gaming element 20 to the next.

[0032] 3 - Aerobic Circuit - Lay out a circuitous course using 10-15 gaming elements 20 or many more. If an odd number of elements are used, each time a circuit is completed and the participant continues, the right foot will now come in contact with the elements contacted with the left foot on the previous circuit. Find a sequence, arrangement, spacing, and pace that meets your ability and aerobic goals. Reverse direction after a given number circuits.

[0033] 4 - Total Control, Control, Heel Clickin' - Click your heels on each of the gaming elements 20 as you proceed. As you land on one of the elements 20 with the ball of your foot, touch the toe of your other foot to the heel of the foot on the element before proceeding to the next element.

[0034] 5 – Crossover – If the elements 20 are arranged in a linear fashion, a logical left/right pattern could be defined by a median line separating the left elements from the right elements, wherein the left foot contacts the left elements and the right foot contacts the right elements. A crossover occurs where a ROXster uses their left foot to contact the right elements (being right of the median line) and their right foot to contact the left elements (being left of the median line).

[0035] 6 - Pick Up - Lay out an easy sequence, but have objects (candy, ball, stick, etc.) (as many as you like) along the "trail" (i.e. series of elements 20) that must be picked up as you proceed.

[0036] 7 - Ultimate Challenge - One to four or more ROXsters 15. One person lays out a course of his/her choice with as many elements 20 as he/she chooses. Each ROXster 15 must proceed through the course, counting one point for each of the HOP ROX elements 20 successfully negotiated. Highest score wins. Hop-offs for ties.

[0037] 8 - Rhythm - Proceed through any course to the music of your choice and hop to the beat for fun, fitness, or competition.

[0038] 9 - Hop Scotch - Lay out the course in a pattern similar to traditional Hop Scotch. Participants 15 must land on pairs at the same time.

[0039] 10 - Pairs, Frog, Kangaroo - Lay out the course in pairs and hop them two by two. Each pair can be a different distance apart.

[0040] 11 - Backwards - Any game, but hop backward (different set of muscles and skill altogether).

[0041] 12 - Speed - Lay out a course and check your time with a stopwatch. Compete against yourself or others. One point for each element 20 must be achieved, that is each element 20 in the series must be bounded to and from for a time to be awarded. Alternately, a specified amount of time, such as 5 seconds, may be subtracted for each missed element.

[0042] 13 - Marathon - Lay out a course in a circuit with as many gaming elements 20 as you choose. Proceed as far or long as possible while following the basic rules, counting each successful step as a point.

[0043] 14 - Buddy Hop - Lay out two parallel courses and hop side by side with a buddy while holding hands.

[0044] 15 - Mimic or Stunt - On any course, at some point, stop on one foot on one of the gaming elements 20 and do something creative (turn 360°, sing a verse, touch your toe, etc.) and complete the course. Other ROXsters 15 have to mimic the stunt.

[0045] 16 - Rock Hoppin' Tag - Think about safety! Lay out 20-40 gaming elements 20 at random in an area approximately 25-30 feet in diameter. Play tag while following the basic rules.

[0046] 17 - Snail Pace - Lay out a short course (3-5 elements 20 at any level of difficulty) in a random pattern and see who can proceed the slowest without a touch, while always balancing on the ball of one foot on any one of the elements 20.

[0047] 18 - Distraction, Concentration - Lay out any course. While the ROXster 15 is proceeding, other players can distract him/her by talking, throwing small foam balls, etc., but not physically touching them. The goal is to maintain concentration while proceeding through the course.

[0048] 19 - Distance - Lay out any number of elements 20 in a line. The object is to see how great a distance can be covered from the first to the last element 20 without a miss. Distance is measured in a straight line from the center of the first HOP ROX element 20 to the center of the last element 20. The ROXster 15 must begin from a standing start on the first HOP ROX element 20.

[0049] 20 - Catch - ROXsters 15 receive a throw of a ball or other soft object from a team member or other player at any designated HOP ROX element 20 on the course. The ROXster 15 must successfully return the throw before advancing.

[0050] 21 - Lay Out or Build As You Balance - Lay one of the HOP ROX elements 20 on the floor, hold nine elements 20 in your hands. Begin on HOP ROX element #1 and toss down element #2 while balancing on element #1. Proceed to element #2. Toss down element #3 while balancing on element #2. Proceed to element #3. Continue until all 10 gaming elements 20 have been negotiated.

[0051] 22 - Egret or Crane Dance or Yoga One or Meditation or Last One Standing - Everyone in the group picks one of the HOP ROX elements 20. Spread out at least an arm's length from anyone else. At the start signal, ROXsters 15 stand on their gaming element on one leg. If you touch the ground or anyone else, you are out. The last ROXster 15 standing wins. Variation: Switch feet at a signal such as a whistle blow. Variation: Play catch with soft foam ball, rubber frog, soft disc, etc.

[0052] 23 - Hand Slap or Showdown or High Fives - Two ROXsters play this game. Place two pair of HOP ROX elements 20 in a rectangular shape about 1x2 feet apart. Each ROXster 15 stands on their own pair of HOP ROX elements 20 facing one another. The object is to slap hands (like giving high fives) at about chest or shoulder level, and try to knock the other ROXster 15 off balance. The last one to touch the ground wins. Variation: Stand on only one of the HOP ROX elements 20.

[0053] 24 - Switch - Like Yoga One, but after 5 seconds (or other time of your choice), a leader signals to hop and switch legs without touching the ground.

- [0054] 25 - One Leg It - Select most any of the games described above and proceed through the course on only one leg. Variation: L-3, R-3, L-3, R-3, etc. or L-2,R-2,or L-2,R-2,L-3,R-3. Pick various number sequences or patterns.
- [0055] 26 - Hurtle - At some point along a course, have a bar or object that you must pass over.
- [0056] 27 - Circle or Roundabout or Clock/Counterclock - Lay out any odd number (at least five) of HOP ROX elements 20 in a circle-like course and alternate between clockwise and counterclockwise rotation to exercise different muscles.
- [0057] 28 - Foot Slap - As one foot lands on one of the HOP ROX elements 20, slap the bottom of your other foot with your opposite hand.
- [0058] 29 - Incline - Try any of the HOP ROX games on a moderate incline (like a blacktop or concrete driveway) to increase the level of difficulty.
- [0059] 30 - Random - Lay out any number of HOP ROX elements 20 in a random pattern group, not in a line. The goal is to begin anywhere and stay in motion in any sequence (stepping on the same one over is OK). Count every successful hop as one point. Variation: How many can you hop to in 30 seconds (or any chosen amount of time).
- [0060] 31 - No Hands - Try most any of the games described above while keeping your hands on your hips, on top of your head, behind your back, while carrying a basketball with two hands, etc.
- [0061] 32 - Quick Switch - Stand on your left foot on one of the HOP ROX elements 20, then hop and switch to the right, then to the left, right, etc.
- [0062] 33 - Quick Switch Trail - ROXster begins with the left foot on one of the HOP ROX elements 20, but must switch to the right foot before going on to the next HOP ROX element 20. The ROXster 15 again lands on the left, switches to the right before going on to #3, etc., etc., in as long a sequence as you choose. Variation: Switch L.R.L, always landing on the left, switching to right and back to left before proceeding. This is a powerful workout for your left leg, which can also be reversed to workout the right leg.
- [0063] 34 - Triangle - Lay out three HOP ROX elements 20 in a triangular shape. Begin with your right foot on one element 20, hop forward with your left foot to the next element 20, then forward with your right foot, back with your left, forward with your right, and so on.

This sequence makes for a great drill when it is necessary to incorporate back hopping into other games or routines. Next begin with your left.

[0064] 35 - Weights - Carry a light (1-3 lbs.) soft weight in each hand while hopping a course.

[0065] All of the references cited herein, including patents, patent applications, and publications, are hereby incorporated in their entireties by reference.

[0066] The foregoing description of various embodiments of the invention has been presented for purposes of illustration and description. It is not intended to be exhaustive or to limit the invention to the precise embodiments disclosed. Numerous modifications or variations are possible in light of the above teachings. The embodiments discussed were chosen and described to provide the best illustration of the principles of the invention and its practical application to thereby enable one of ordinary skill in the art to utilize the invention in various embodiments and with various modifications as are suited to the particular use contemplated. All such modifications and variations are within the scope of the invention as determined by the appended claims when interpreted in accordance with the breadth to which they are fairly, legally, and equitably entitled.